

even although the infallible forecaster may never arise, the advance of knowledge by the method of research cannot fail to repay many times over the wisely administered expenditure of the public money entrusted to the Meteorological Committee.

HUGH ROBERT MILL.

THE HISTORY OF MEDICINE.

History of Medicine. By Prof. M. Neuburger. Vol. i. Translated by E. Playfair. Pp. x+404. (London: H. Frowde and Hodder and Stoughton, 1910.) Price 25s. net.

THE first volume of this history of medicine by the professor of the subject in the University of Vienna deals with the period *ab initio mundi* to the end of the Middle Ages. A somewhat confused preface by Sir William Osler introduces the work, asserting on the first page that professorships on the subject have been established in English universities, and on the second page that "there is not in this country a single chair of the history of medicine." The Fitzpatrick lectureship on the history of medicine in the Royal College of Physicians of London is mentioned, but Sir William Osler fails to perceive that it was established with the obvious intention that the lecturer should always be a physician learned in medicine, as well as in the part of its history which he might select for his lectures. The courses which have been delivered during the past nine years by three members of the University of Oxford and two of the University of Cambridge have shown the usefulness of such a provision. They have been worthy examples of the same school as "The History of Physick from the time of Galen to the beginning of the Sixteenth Century," written by Dr. John Freind in 1723, a book which is at once pleasant reading, sound medicine, and good history.

The history of medicine as written by men ignorant of its practice and inexperienced in the observation of disease is rarely of the first order. Littré, whose writings are a valuable contribution to medical history, is no example to the contrary, for he had completed his medical education and had meditated deeply on all he had seen in the wards, though, in consequence of his poverty, he did not actually take a medical degree. It is the fact that the late Dr. J. F. Payne was a physician of wide attainments in his profession, as well as a scholar deeply read in medical books, which makes his writings such valuable contributions to the history of medicine. Van Swieten was the chief physician of Vienna, and his commentaries on the aphorisms of Boerhaave contain a better history of the growth of the knowledge of disease up to about 1760 than can easily be found anywhere else. If a medical faculty has not in it a physician willing to add to the history of medicine, his place can never be supplied by what this preface calls "archivists" and "backstairs men."

Prof. Neuburger's first volume begins with primitive medicine as illustrated by the trephine holes in Neolithic skulls and by the proceedings of modern

savages. He then gives some account of medicine among the Sumerians, Babylonians, and Assyrians, sufficient to show that scarcely anything is known of it. The next chapter, on the medicine of the ancient Egyptians, contains some interesting fragments of information, but would have been more valuable had its statements been illustrated by descriptions of the actual specimens to be seen at Cairo and in other Egyptian collections. The writings of Eliot Smith are far more illuminating on the subject of the Egyptian knowledge of anatomy, pathology, and surgery. A chapter on the ancient Persians contains scarcely enough information to rouse curiosity.

The well-known passage in Ecclesiasticus on the physician is quoted, and cannot be quoted too often, but the medicine of the Old Testament is very imperfectly discussed. Robertson Smith's acute remarks on the golden emerods and mice in relation to an early epidemic of plague, for example, are not mentioned. The medicine of Hindustan and that of the Chinese and Japanese are treated in two longer chapters, and the reader anxious for first-hand information then passes on with relief to medicine in classic antiquity, to the Homeric healing art, to the Greek physicians, theories, and medical schools, and to two interesting chapters on Hippocrates. Prof. Neuburger venerates the Father of Medicine, and says that he is

"Admired by all, really understood by few, imitated by many, equalled by none; he was the master of medicine for all time."

When it is remembered that the Hippocratic school practised, as indeed is well described in this book, palpation and auscultation, it is scarcely correct to say that "Prognosis gives to the mental attitude of the Hippocratist its characteristic colouring, and leaves diagnosis far behind it in importance," though, of course, it is true that the Hippocratic view of prognosis required the practice of an almost hourly meditation on the course of the disease *pari passu* with observation of the symptoms. The transplantation of Greek medicine to Rome, Asclepiades the friend of Cicero, as well as several later physicians and schools, are discussed. Galen is dealt with in a long chapter, and the general character of his writings is justly presented to the reader. It is certainly true that by him "special pathology is well represented, and in the chaff of irresponsible speculation there is hidden many a grain of genuine observation and surprisingly clear insight." Medicine in the decline of antiquity is then described, with a somewhat disappointing chapter on Byzantine medicine and one on Arabic medicine, which adds little if anything to the account of the Arabian physicians published by Ferdinand Wüstenfeld in 1840. The second volume is to deal with the medicine of the Renaissance and of modern times.

The defect of the book is a desire to mention too many facts, with the result that few parts of the history are set forth at sufficient length to be clear or to be interesting. Prof. Neuburger's style is often rhetorical, but he generally fails to excite in his reader a living interest in the men of whom he tells or in the books which he describes, and there is the more

serious defect that references and authorities are imperfectly given, so that the work reads like a book meant to be used in cramming men for examinations and not like a real introduction to the subject. Dr. Ernest Playfair has performed the difficult task of translation admirably.

HIGHER DYNAMICS FOR ENGINEERS.

A Treatise on Dynamics, with Examples and Exercises. By Prof. A. Gray, F.R.S., and Dr. J. G. Gray. Pp. xvi+626. (London: Macmillan and Co., Ltd., 1911.) Price 10s. net.

THE preface to this book states that it is intended "to provide a discussion of higher dynamics suitable to students of engineering, physics, or astronomy." It is doubtful whether it would be a good book for intending students of astronomy, but it will be useful both to physicists and to students of applied mathematics as supplementing other treatises, and is an excellent book for an engineer whose mathematical equipment is sufficient to follow the reasoning.

Examples of problems which occur in engineering or are of special interest to engineers appear early, and continue right through the book; in addition to those included in the majority of treatises (including trajectories in resisting media) may be mentioned resistances of water to ships, steering of ships, brakes of trains, motion of wheeled vehicles, and dynamics of self-propelled vehicles. The conditions which contributed to the Salisbury accident of 1906 are fully discussed, and although there is a misprint in the figure used in this discussion, and a misprint of $\tan^{-1}$ for $\sin^{-1}$, the results, both algebraic and arithmetic, are correct. The reasons why a blacksmith uses small and large hammers for different purposes (p. 399) do not appear in most treatises on dynamics!

Although elementary dynamical questions like the above are clearly and fully discussed, elliptic integrals are introduced where thought to be practically useful (as in the pendulum), and there is a clear and full discussion of three-dimensional rigid dynamical problems, mainly of a practical nature. The change in the ordinary figure (art. 9) by which the usual right-handed screw notation is made consistent with the traditional forms of Euler's and kindred three-dimensional equations will commend itself equally to teachers and students of dynamics, though the figure might with advantage have been repeated in the later chapters. The principle of this article is claimed in the preface to be comparatively new, but seems not to differ from that practically used by the standard treatise of Routh. The principle is, however, expressed clearly and made good use of in the chapter on gyrostats, which should be specially useful to engineering students as giving a clear and practical explanation of a subject generally regarded as difficult. The discussions of gyrostatic control of the rolling of ships, the monorail, the gyrostatic action of turbine-driven steamers, and other questions are very full, while examples, such as those on self-steering torpedoes and on the effect of the rotation of the

earth on the aiming of artillery, give practical illustrations of the value of the higher parts of the subject. The gyrostats in Thomson and Tait § 345, x., are reproduced, and partially discussed; but the discussion is not quite full enough, and it may be remarked that the azimuthal equilibrium in case 3 is said to be made stable by rotation, which is contrary to Thomson and Tait's result, and seems to be incorrect.

Lagrange's equations, though foreshadowed early in the treatise (p. 112), are not introduced seriously until chapter x.; they might have been of assistance to students in the two preceding chapters, in which tops, gyrostats, motion about a point under no forces, and motion of hoops are discussed, but the authors certainly do very well without the aid of these equations. Chapter x., which gives the transformations of Hamilton and Appell of the general equations, will be more useful to students of physics than to engineers or engineering students; but in all the rest of the book except in chapter v., which deals with orbits, the needs of engineering take a prominent place. Chapter v., which is presumably written for the astronomer, scarcely differs sufficiently from the traditional treatment to be of much use to him, although some little-known theorems by G. W. Hill and others are included in it.

A rather easy chapter on some quite simple statical properties comes as a surprise at the end of the book, following the advanced chapters on rigid dynamics, and is scarcely in keeping with the character of what precedes. But the general arrangement and presentation of the subject is likely to be most useful to all engineering students of sufficient mathematical capacity, and to many students of physics and of applied mathematics.

There are a few misprints, in addition to those noted above, but none which could not be readily corrected. A little revision of pp. 392 and 393, and a re-wording of the second line of p. 137 might be useful in subsequent editions. The results of the examples, so far as the reviewer has verified them, seem to be correct.

APPLIED MICROBIOLOGY.

Einführung in die Mykologie der Genussmittel und in die Gärungsphysiologie. By Prof. Alex. Kossowicz. Pp. viii+211+2 plates. (Berlin: Gebrüder Borntraeger, 1911.) Price 6 marks.

THIS work, a companion volume to the author's "Mycology of Foodstuffs," deals with those adjuncts of the table the use of which, although not strictly necessary, and classed, and for the most part taxed, as luxurious, has become so firmly established that few of us are sufficiently Spartan entirely to avoid it. Fermented beverages, both alcoholic and (reputedly) non-alcoholic, vinegar, mustard (of the French variety), vanilla, cocoa, coffee, tea, and the post-prandial cigar are all submitted to processes of fermentation at one stage or other of their progress towards that culmination of perfection which delights the connoisseur. It is with the organisms concerned,